TRONOX

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November 9, 2007

Ms. Shannon Harbour, P.E.
Nevada Division of Environmental Protection
2030 East Flamingo Road, Suite 230
Las Vegas, Nevada 89119-0818

Subject: Tronox Response to NDEP comments dated September 19, 2007 on the Data Validation Summary Report in the Annual Performance Report dated August 28, 2007 for Tronox LLC, Henderson, Nevada

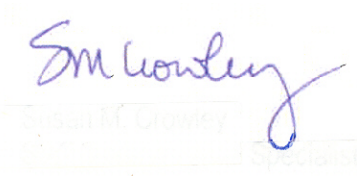
Dear Ms. Harbour:

Tronox LLC (Tronox) has undertaken an Environmental Conditions Assessment (ECA) as directed by the Nevada Division of Environmental Protection (NDEP). In response to the comments contained in the NDEP September 19, 2007 letter, Tronox has revised the enclosed DVSR. The NDEP letter and Tronox's annotated response to the comments are also included. The enclosed documents include revisions and additions to Appendices C and E. A CD with the revised DVSR, lab reports, raw lab data, Access database (this did not require revision), data validation memo, and correspondence is included for your use.

As you know, the NDEP granted Tronox and extension to November 19, 2007 for delivery of this document.

Please contact me at (702) 651-2234 if you have any comments or questions concerning this correspondence.

Sincerely,



Susan M. Crowley
Staff Environmental Specialist

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Crouse	George	Syngenta		X	
Erickson	Lee	Stauffer		X	
Kelly	Joe	Montrose			
Sundberg	Paul	Montrose		X	
Gibson	Jeff	AmPac		X	
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Wilkinson	Craig	Timet		X	
Mack	Joel	Montrose Counsel			

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DIVISION OF ENVIRONMENTAL PROTECTION

Jim Gibbons, Governor
Allen Biaggi, Director
Leo M. Drozdoff, P.E., Administrator

September 19, 2007

Susan Crowley
Tronox LLC
PO Box 55
Henderson, Nevada 89009

Re: **Tronox LLC (TRX)**
NDEP Facility ID #H-000539
Nevada Division of Environmental Protection Response to:
Data Validation Summary Report (DVSR) for the *TRONOX Annual Performance Report for Chromium and Perchlorate, Henderson, Nevada July 2006 to June 2007.*
Dated August 28, 2007

Dear Ms. Crowley,

The NDEP has received and reviewed TRX's Data Validation Summary Report (DVSR) identified above and provides comments in Attachment A. A revised DVSR should be submitted based on the comments found in Appendix A by **October 18, 2007**. TRX should additionally provide an annotated response-to-comments letter as part of the revised DVSR.

Please contact the undersigned with any questions at (702) 486-2850 x 240 or sharbour@ndep.nv.gov.

Sincerely,

Shannon Harbour, P.E.
Staff Engineer III
Bureau of Corrective Actions
Special Projects Branch
NDEP-Las Vegas Office

SH:sh

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Attachment A

1. Section 2.0, the DVSR indicates that the data were subject to limited data validation (i.e. Tier 2) due to the absence of complete data packages with raw data. The NDEP has the following comments:
    a. The DVSR indicates that the limited data validation is consistent with the NDEP guidance on data validation of 2006. However, the NDEP guidance also requires at least 10% of the data to undergo full data validation – to the level of raw data. Thus, this data validation has not met the NDEP requirements.
    b. TRX should request the full raw data reports from MWH for at least 10% of the data from this report and these data should then be validated as follows (where applicable) for inclusion in the DVSR:
        i. 100% validation of Initial and Continuing Calibration,
        ii. Random recalculation (10-20%) of reported results versus raw data, and
        iii. 100% validation of Interference Check Sample (data reporting forms), ICP Serial Dilution (data reporting forms), Reporting Limits (ensure they include appropriate sample weights, moisture, dilution).
2. Section 3.7, the NDEP has the following comments:
    a. The DVSR states that the nitrate results for the influent/effluent sample pair collected on 1/29/2007 were qualified and estimated due to the absence of a CCV. This is consistent with laboratory report SDG 194620; however, please note that the absent CCV also applies to nitrite in this SDG although the results were below the detection limits for this analyte.
    b. The DVSR states that the samples were reanalyzed outside of the holding time with similar results as the original. However, this could not be confirmed since the analysis date and SDG for this reanalysis was not provided. Please provide the SDG under which the reanalysis was performed and include those laboratory reports in the report if they are not currently provided
3. Table E-3, the NDEP has the following comments:
    a. Sample M – 36 (analyzed on 05/03/07 from laboratory report SDG 203591) in Table E-3 contains a discrepancy in the "DQI" column for Holding Time and then refers to the associated "DQI Result" as 108% RPD. Since the issue is holding time, an RPD value is not applicable. The "DQI Result" would normally be reported in days if the DQI issue was holding time. In addition, upon checking the SDG report from the laboratory there appears to be no problem with holding time. Please correct this discrepancy.
    b. Samples from laboratory report SDG 203746 (ART-1 through ART - 8) were noted as qualified due to an exceedance of the TDS holding time requirement. The laboratory report stated that these samples were initially analyzed within holding time and re-analysis was outside the holding time. Additionally, the DVSR should include some indication of why these samples required reanalysis and whether similar results were obtained if the data are at all comparable. Please address these comments in the DVSR.
    c. Laboratory report SDG 192802 shows the analysis for nitrate is slightly past the 1-day holding time. This sample was not included with those listed in the Table E-3. Please correct this discrepancy.

Tronox Response to September 19, 2007 NDEP comments on the DVSR in the Annual Performance Report for Chromium and Perchlorate, Henderson, Nevada July 2006 to June 2007.
(Report date August 28, 2007)

NDEP Comment

1. Section 2.0, the DVSR indicates that the data were subject to limited data validation (i.e. Tier 2) due to the absence of complete data packages with raw data. The NDEP has the following comments:
    a. The DVSR indicates that the limited data validation is consistent with the NDEP guidance on data validation of 2006. However, the NDEP guidance also requires at least 10% of the data to undergo full data validation – to the level of raw data. Thus, this data validation has not met the NDEP requirements.
    b. TRX should request the full raw data reports from MWH for at least 10% of the data from this report and these data should then be validated as follows (where applicable) for inclusion in the DVSR:
        i. 100% validation of Initial and Continuing Calibration,
        ii. Random recalculation (10-20%) of reported results versus raw data, and
        iii. 100% validation of Interference Check Sample (data reporting forms), ICP Serial Dilution (data reporting forms), Reporting Limits (ensure they include appropriate sample weights, moisture, dilution).

Tronox Response

Agreed. Tronox requested and was provided full raw data reports by MWH for 10 representative SDGs to cover the full range of analytes reviewed in both the Influent/Effluent samples and monitor wells. A single data validation memo covering these 10 SDGs and a revised DVSR will be provided to NDEP with this response to comments. No additional validation qualifiers were applied to the database as a result of this additional raw data review because none were needed.

NDEP Comment

2. Section 3.7, the NDEP has the following comments:
    a. The DVSR states that the nitrate results for the influent/effluent sample pair collected on 1/29/2007 were qualified and estimated due to the absence of a CCV. This is consistent with laboratory report SDG 194620; however, please note that the absent CCV also applies to nitrite in this SDG although the results were below the detection limits for this analyte.
    b. The DVSR states that the samples were reanalyzed outside of the holding time with similar results as the original. However, this could not be confirmed since the analysis date and SDG for this reanalysis was not provided. Please provide the SDG under which the reanalysis was performed and include those laboratory reports in the report if they are not currently provided

Tronox Response

Noted. Data was provided to ENSR from MWH by email regarding the reanalysis results and dates. All raw data for this SDG, including raw data for the reanalysis on 1/31/07, was requested by ENSR and provided by MWH. See 194620.300.0.NO3.pdf in the revised Appx.C.

NDEP Comment

3. Table E-3, the NDEP has the following comments:
    a. Sample M – 36 (analyzed on 05/03/07 from laboratory report SDG 203591) in Table E-3 contains a discrepancy in the "DQI" column for Holding Time and then refers to the associated "DQI Result" as 108% RPD. Since the issue is holding time, an RPD value is not applicable. The "DQI Result" would normally be reported in days if the DQI issue was holding time. In addition, upon checking the SDG report from the laboratory there appears to be no problem with holding time. Please correct this discrepancy.

b. Samples from laboratory report SDG 203746 (ART-1 through ART - 8) were noted as qualified due to an exceedance of the TDS holding time requirement. The laboratory report stated that these samples were initially analyzed within holding time and re-analysis was outside the holding time. Additionally, the DVSR should include some indication of why these samples required reanalysis and whether similar results were obtained if the data are at all comparable. Please address these comments in the DVSR.
c. Laboratory report SDG 192802 shows the analysis for nitrate is slightly past the 1-day holding time. This sample was not included with those listed in the Table E-3. Please correct this discrepancy.

Tronox Response

3a. Agreed, however the holding time was exceeded. Table E-3 was in error for the DQI Result value for M-36_05/03/07. This value should be 1.07 days. Per the COC included in this report this sample was collected at 10:58, however the Cr(VI) analysis was not performed until 12:04 the following day per page 4 of the report. The holding time for Cr(VI) in water per EPA 7196 is 24 hours, therefore the holding time was exceeded.

3b. Noted. Follow-up conversations with the laboratory and review of all the raw data for this SDG revealed that these samples were reanalyzed by the laboratory because the initial results were inconsistent with the historical data for these wells. This is discussed in the new data validation memorandum for the full raw data review of SDG 203746 and the revised DVSR as requested.

3c. The holding time for nitrate and nitrite per EPA Method 300.0 is 48 hours. The Influent and Effluent samples in SDG 192802 were collected at 7:00 and 6:30, respectively on 1/8/07. Analyses of these samples occurred at 19:29 and 19:43, respectively, on 1/9/07, therefore the analysis was performed within holding time.

Prepared for:
Tronox LLC
Henderson, Nevada

Data Validation Summary Report

ENSR Corporation
August 2007, Revised October 2007
Document No.: 04020-023-110

ENSR | AECOM

Prepared for:
Tronox LLC
Henderson, Nevada

Data Validation Summary Report

Prepared By Robert Kennedy
Senior Project Chemist
ENSR International

Reviewed By Marie Wojtas

ENSR Corporation
August 2007, Revised October 2007
Document No.: 04020-023-110

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Contents

TABLES

1.0 INTRODUCTION

The purpose of limited data validation performed on laboratory results for the first and second quarter of 2007 was to determine the suitability of the data for future on-site environmental assessments, including the Annual Performance Report for Chromium and Perchlorate covering July of 2006 – June of 2007. The majority of the reviewed data discussed below was collected between January and June of 2007. Some previously unvalidated data collected between July and December of 2006 was also included in the reviewed dataset. In addition, data reviewed in previous quarterly and semiannual reports, although within the annual report date range, are not discussed in this DVSR. This DVSR was revised in response to comments received from the Nevada Division of Environmental Protection dated September 19, 2007.

MWH Laboratories in Monrovia, CA was the lab contracted by Tronox for the chemical analyses discussed below as a part of the routine monitoring program at the Tronox facility in Henderson, Nevada. All samples were collected unfiltered by Veolia or ENSR personnel. The specific analyses performed by the laboratory and reviewed in this report include only the subset of analytes listed in Appendix A&B of the Annual Performance Report for Chromium and Perchlorate. Samples in the reviewed report set were analyzed for one on more of the following parameters: perchlorate, chlorate, hexavalent chromium, total chromium, total dissolved solids (TDS), and nitrate. **Table E-4** lists the sample IDs (well ID and collection date), SDG (MWH report numbers), and analyte/method list for each sample included in this DVSR.

2.0 DATA VALIDATION PROCESS

All the results contained in the lab reports listed in the data validation memorandum were subjected to thorough data review called limited validation. Full data packages, including raw data, were subjected to full validation for 10% of data packages as recommended in the guidance on data validation provided by NDEP for the BMI Plant Sites (NDEP, 2006). These SDGs subjected to full validation are indicated in bold in **Table E-4**. The laboratory submitted sample and batch QC results with narratives in pdf format and EQuIS format EDDs for all samples, and raw data for only the 10 data packages that were subjected to full validation. The EDDs were imported into an EQuIS database at Tronox specifically created for the ongoing monitoring at the Henderson site. ENSR performed a limited validation on the data using the hard copy data package and subsequently entered the qualifiers and associated reason codes into the database.

Limited validation consisted of reviewing the following data elements to the level of summary data forms.

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times and sample preservation
- Laboratory blanks/equipment blanks/ field blanks
- Laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) results
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Laboratory duplicate results
- Field duplicate results
- Sample results and detection limits

Full validation consisted in reviewing the above data elements plus the following extra elements, all to the level of raw data review.

- Initial and continuing calibrations
- Interference check sample results
- ICP serial dilution results

Analytical data were evaluated with reference to the National Functional Guidelines (EPA 2004) and other method appropriate validation guidance documents, as well as the Region 9 Superfund Data Evaluation/Validation Guidance (EPA, 2001), the above mentioned NDEP Guidance on Data Validation (NDEP, 2006), and by the quality control (QC) criteria provided by the laboratory. The Regional and National Functional Guidelines were modified to accommodate the non-Contract Laboratory Program (CLP) methodologies. The specific guidelines used for the various methods were as follows:

- Inorganic analytical data were evaluated with reference to "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review" (EPA, 2004)

In general, the validation qualifiers and definitions employed were based on those used by EPA in the document mentioned above. Validation qualifiers and definitions are listed in **Table E-1**. A reason code was assigned to all validation qualifiers applied during this review. The reason codes and their explanations are listed in **Table E-2**. These codes were entered in the project database to indicate the primary reason(s) for data validation qualification (resulting in a change to a lab qualifier or result value). Conversions of the laboratory reported “ND” for not detected to the U qualifier in the database and the laboratory-applied “J” qualifier to indicate results less than the reporting limit (RL) but greater than the method detection limit (MDL) are not further discussed in this report.

Data validation was organized by MWH Laboratory Report which is also identified as the sample delivery group (SDG) in the tables. Four combined data validation memoranda for all the reviewed reports were written by data validators and reviewed by a peer at ENSR’s Westford office. These memoranda are included on CD-ROM as pdf documents and each includes a list of the data reviewed by the laboratory SDGs listed in Attachment A.

3.0 DATA VALIDATION RESULTS

The data validation qualifiers and reason codes were used to select all the data in the database where results were qualified as a result of validation. This information was sorted by the quality control (QC) review elements listed below:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Initial and continuing calibrations (full validation only)
- Interference check sample results (full validation only)
- Holding times and sample preservation
- Laboratory blanks/equipment blanks/ field blanks
- Laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) results
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Laboratory duplicate results

- Field duplicate results
- ICP serial dilution results (full validation only)
- Quantitation limits and sample results
- Calculation and transcription verifications

Tables E-3 lists all the results which were qualified based on quality control issues identified with regard to holding times, sample preservation, equipment blank results, matrix spike results, and field duplicates. No QC issues were identified that resulted in qualification of results based on interference check sample results, LCS/LCSD results, lab duplicate results, ICP serial dilution results, or quantitation problems. As requested by NDEP, Reason codes, Data Quality Indicators (DQI), and the nonconforming DQI results are listed in **Table E-3**.

3.1 Initial and Continuing Calibrations

All criteria were met for the calibration curves and the initial and continuing calibration verification (ICV/CCV) standards (where applicable) except as noted in SDG 194620.There was no mid range QC run for nitrate due to instrument mis-loading for some samples in this SDG. Upon communication with the laboratory, it was determined that the mid-range continuing calibration verification (CCV) standard for nitrate was inadvertently not analyzed. The affected samples were re-analyzed beyond holding time, with similar results. The laboratory chose to report the original results. During validation the detected and nondetect nitrate results for the associated samples (Influent and Effluent) were qualified as estimated (J and UJ, respectively) due to method noncompliance.

3.2 Holding Times and Sample Preservation

Holding times were derived from the EPA methods utilized and were calculated beginning from the time of sample collection. The majority of analyses were performed within the method-specified holding times. Exceptions are listed in **Table E-3** and summarized in the validation memoranda. The DQI result value for holding time in Table E-3 is the time elapsed between sample collection and analysis in days. The holding time for hexavalent chromium samples collected before April 11, 2007 is 24 hours from collection to analysis. A revision to this holding time was made for samples collected on or after April 11, 2007. On this date (April 11, 2007) the new Federal Register rules published on March 12, 2007 became effective. Using the new rule, samples collected, preserved, filtered, and analyzed in accordance with EPA method 218.6 requirements, have a holding time of 28 days. The holding time for perchlorate in water is 28 days from collection to analysis. The holding time for Total Dissolved Solids (TDS) in water is 7 days from collection to analysis. The holding time for nitrate analysis by EPA Method 300 is 48 hours. No data were rejected on the basis of holding time exceedances but some results were qualified as estimated. Results for hexavalent chromium, nitrate, and TDS required qualification on the basis of holding time issues as discussed in the data review memoranda. Where the TDS holding time was exceeded TDS results were qualified as J- because the method specifically mentions potential biodegradation of solids as the reason samples should be filtered as soon as possible. The Cr (VI) qualifiers for hold time exceedance were not assigned a low bias because it is unclear which direction (positive or negative bias) the result would deviate. Cr (VI) concentrations can change unpredictably over time in response to absorption of gases, pH changes, and redox condition changes.

It was determined that the cause for the reanalysis of the TDS samples outside of holding time in SDG 203746 was that the initial results were found by the laboratory to be inconsistent with the historical data for these ART-1 to ART-8 wells.

Sample preservation requirements were met for all samples with the exception of a temperature exceedance in the influent and effluent samples received on 2/5/07. The cooler temperature was 11°C and therefore the detect and nondetect results for nitrate, chlorate, and perchlorate were qualified as estimated (J and UJ, respectively).

3.3 Blank Contamination

In general, laboratory and field blanks were free of contamination. The field blanks collected on 4/30/07, 5/1/07, and 5/2/07, and analyzed for TDS appeared to be contaminated. The associated TDS results in six equipment blanks were qualified as estimated and possibly biased high (J+). Low levels of perchlorate, chlorate, and TDS were detected in several equipment blanks, but associated sample data did not require qualification due to blank contamination because the sample results were greater than 10 times the blank concentrations.

3.4 Laboratory Control Samples

LCS and LCSD recoveries met QC acceptance criteria for all of the analyses reviewed

3.5 Matrix Spike Samples

MS and MSD recoveries met the QC acceptance criteria for all the analyses reviewed in this report with one exception. MS and MSD recoveries of hexavalent chromium in the effluent sample collected on 3/26/07 were outside the laboratory acceptance limits of 90-110%. The nondetect result for Cr (VI) in this effluent sample was therefore qualified as estimated (UJ) and the associated positive influent result was also qualified as estimated (J).

3.6 Laboratory Duplicates

The evaluation of laboratory duplicate precision included an assessment of the agreement between LCS and LCSDs, MS and MSDs, and matrix duplicates, as measured through relative percent difference (RPD). None of the results required qualified during validation based on laboratory duplicate precision.

3.7 Field Duplicates

The results of the ten groundwater sample duplicate pairs collected during April and May of 2007 were evaluated during validation. RPDs were compared to the objectives of 30% maximum RPD for aqueous samples. The RPD for a single sample/duplicate pair (M-100/MD-2) collected on 5/3/2007 and analyzed for perchlorate and TDS exceeded this criterion. The associated 38 detect and nondetect results for these analytes were therefore qualified as estimated (J and UJ, respectively). It appears the sample marked M-100 may have been mislabeled given that the RPD values for both perchlorate and TDS are exactly 108% and that the MD-2 results agree well with historical data for M-100. Therefore the M-100 results for perchlorate and TDS were flagged “not reportable” in the database. The reported values are provided in Table E-3 for review. Checks of the samples based on conductivity were performed by the lab and support the original analyses. Formal rejection (R) of data based on field duplicate results is not performed during validation.

3.8 Quantitation Limits, Sample Results, and Calibration

No results were qualified based on QC related to quantitation limits or sample results reported.

3.9 Rejected Results

No results in the reviewed dataset were rejected based on validation criteria or QC nonconformances.

4.0 EVALUATION OF DATA QUALITY INDICATORS

Data validation information was used to evaluate the data quality indicators (DQI) of precision, accuracy, representativeness, comparability, completeness, and sensitivity for results in the dataset for the Henderson Quarterly Performance Perchlorate Report. Each of these DQI parameters is discussed in sections below.

4.1 Precision

Precision is the measure of agreement among repeated measurements of the same property under identical or substantially similar conditions. Field precision was assessed through the collection and measurement of field duplicates and expressed as the RPD of the sample and field duplicate pair results. In general the field duplicate precision was acceptable for all analytes reported.

Laboratory precision was assessed through the RPD results for matrix duplicates, LCS/LCSD pairs, and MS/MSD pairs. No nonconformances which resulted in the application of validation qualifiers were discovered. In general, the laboratory duplicate precision was acceptable.

4.2 Accuracy

Accuracy is the degree of agreement between an observed value and an accepted reference or true value. Laboratory accuracy was assessed during the validation using the recoveries of positive control samples (i.e., MS and MSD, LCS and LCSD, and surrogate spikes). The results of all positive control samples were acceptable with the exception of those discussed in Section 3.4. Accuracy is also indirectly addressed via the negative control samples for field activities (i.e. trip, equipment, and field blanks), as well as laboratory negative control samples (i.e., method blanks and calibration blanks). All negative control sample results were acceptable with the exceptions discussed above in Section 3.2. Accuracy was also assessed in the review of initial and continuing calibrations for the data packages subjected to full validation.

Bias as a component of accuracy is also evaluated with the validation of holding time results discussed in Section 3.1 of this report. These evaluations resulted in the minor qualification of some results as described in the data validation memo and Section 3.1 above.

4.3 Representativeness

Representativeness is the measure of the degree to which data suitably represent a characteristic of a population, parameter variations at a sampling point, a process condition, or an environmental condition. Aspects of representativeness addressed during validation include the review of sample collection information in the chain-of-custody (COC) documentation, conformity of laboratory analyses to workplan intentions, adherence of the documented laboratory procedures to method requirements, and completeness of the laboratory data packages. Most of the issues identified during this evaluation did not result in the qualification of laboratory data but did involve re-submittals of data from the laboratories to correct problems that were discovered during the data review or validation process. All of these issues were resolved or were judged to have no impact on data validation. Other aspects of data representativeness such as adherence to recommended holding times are discussed in Section 3.1 of this report.

4.4 Completeness

Completeness is a measure of the amount of valid data obtained from a measurement system, expressed as a percentage of the number of valid measurements that were or should have been collected. Valid

data is defined as all the data points judged to be valid (i.e. not rejected), as a result of the validation process.

Field completeness is defined as the percentage of samples actually collected versus those intended to be collected in accordance with the plan for routine monitoring. All intended samples were collected in accordance with the monitoring schedule. All COC requests were faithfully executed by the laboratories with the minor exceptions discussed in the validation memoranda.

Laboratory completeness is defined as percentage of valid data points versus the total expected from the laboratory analyses. Actual laboratory completeness was 100% on the basis of sample analysis (i.e., all requested analyses were performed and reported by the laboratories), and 100% completeness based on valid data as a percentage of the total data points attempted.

4.5 Comparability

Comparability is a qualitative expression of the measure of confidence that two or more data sets may contribute to a common analysis. Comparability of data within the investigation was maximized by using standard methods for sampling and analysis, reporting data, and data validation. The following standard water/wastewater program methods from EPA were employed by the MWH laboratory for all analyses.

- Perchlorate by EPA Method 314
- Hexavalent chromium by SW-846 Method 7196 or EPA Method 218.6
- Total chromium by SW846 6010B or EPA 200.7
- Total dissolved solids (TDS) by SM2540C or EPA160.1
- Chlorate by EPA Method 300.0 or EPA 9056
- Nitrate by EPA Method 300.0 or EPA 9056

The methods used for hexavalent chromium, EPA 7196 and EPA 218.6, both employ the same colorimetric analytical detection system. Method 218.6 utilizes a prior ion chromatographic separation to reduce interferences but both methods have been judged to be comparable by EPA in 40CFR Part136, where SM 3500-Cr (essentially equivalent to EPA 7196) and EPA 218.6 are both approved methods. The EPA 7196 and EPA 218.6 methods are expected to produce comparable data for hexavalent chromium in the groundwater matrix at the Henderson site. Note MWH now consistently uses EPA 218.6 for only the influent/effluent samples under NPDES permit and EPA 7196 for all other wells at the site.

The methods used for total chromium analysis, EPA 6010 and EPA 200.7, are both ICP/AES methods with very similar prep and analysis procedures. These two methods are expected to produce comparable data for total chromium. Minor differences in the QC control limits exist between the methods but MWH appears to consistently use the slightly tighter 200.7 QC limits.

The methods cited for TDS, EPA 160.1 and SM2540C, are essentially identical and can be expected to produce comparable data.

The methods cited for chlorate and nitrate analysis, EPA 300.0 and EPA 9056, are essentially identical and can be expected to produce comparable data.

4.6 Sensitivity

Sensitivity is the capability of a method or instrument to discriminate between measurement responses representing different levels of the variable of interest and particularly the capability of measuring a constituent at low levels. For the EPA methods employed in this project sensitivity is measured by the method detection limit (MDL) and reporting limit (RL). Reporting limits in general were sample quantitation

limits based on the low point of calibration and adjusted for sample-specific factors such as exact aliquot size, dilutions, etc. Sensitivity of the methods employed was adequate for the routine monitoring needs and consistent with the historical data for the site.

5.0 CONCLUSIONS

One hundred percent of the laboratory data used for the Annual Performance Report for Chromium and Perchlorate covering the sample collection time period July 2006 to June 2007 were subjected to a limited validation using standardized guidelines and procedures recommended by EPA and NDEP. Ten percent of the laboratory data packages were subjected to full data validation including a review of the raw data. A limited set of analytical data, defined by the laboratory reports listed in Table E-4 are covered by this DVSR. Previous Quarterly and Semiannual Reports covered the other samples within the Annual Report data range. Ninety three percent of the results for this project were accepted as reported by the laboratory without additional qualification based on validation actions and should be considered valid for all decision making purposes. A subset of the laboratory results were qualified based on issues discovered during the validation and those results are summarized in Tables E-3. The qualified data are grouped in this table based on the reason for qualification (see Table E-2), the Data Quality Indicator (DQI) involved, and the qualifier flags applied (see Table E-1). Seven percent of the results for this project were qualified as estimated due to minor QC problems with sample holding time, sample preservation, blank contamination, matrix spike recoveries, and field duplicate precision. These estimated results should be considered usable for decision making purposes provided the potential bias is considered when the data are used. No results were rejected as unusable due to serious QC problems. Based on the results of data validation the overall goals for data quality were achieved for the dataset used in the Annual Performance Report for Chromium and Perchlorate covering the sample collection time period July 2006 to June 2007.

6.0 REFERENCES

EPA, 1999 USEPA “Contract Laboratory Program National Functional Guidelines for Organic Data Review”

EPA, 2001 USEPA “Draft Region 9 Superfund Data Evaluation/Validation Guidance”

EPA, 2004 USEPA “Contract Laboratory Program National Functional Guidelines for Inorganic Data Review”

ENSR, August 2006 DRAFT Quality Assurance Project Plan, Tronox LLC Facility Henderson, Nevada

NDEP, 2006 NDEP “Guidance on Data Validation, BMI Pant Sites and Common Areas Projects, Henderson, Nevada”

Table E-1
Data Validation Qualifiers
Annual Performance Report for Chromium and Perchlorate
July 2006 - June 2007
Tronox LLC Henderson, Nevada

Validation Qualifier	Definition
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
J+	The result is an estimated quantity and the result may be biased high. This qualifier is applied only to inorganic analyte results.
J-	The result is an estimated quantity and the result may be biased low. This qualifier is applied only to inorganic analyte results.
UJ	The analyte was not detected above the sample reporting limit and the reporting limit is approximate.
U	The analyte was analyzed for, but was not detected above the sample reporting limit
R	The result is rejected and unusable due to serious data deficiencies. The presence or absence of the analyte cannot be verified.
B	The result may be a false positive totally attributable to blank contamination. This qualifier is applied only to radiochemical results.
JB	The result may be biased high and partially attributable to blank contamination. This qualifier is applied only to radiochemical results.

Table E-2
Data Validation Qualifier Reason Codes
Annual Performance Report for Chromium and Perchlorate
Henderson, Nevada
July 2006 - June 2007

Code	Explanation
j-b	estimated due to blank contamination
j-be	estimated due to equipment blank contamination
j-bl	estimated due to lab blank contamination
j-c	estimated due to calibration problems
j-d	estimated due to lab duplicate imprecision (matrix duplicate, MSD, LCSD)
j-f	estimated due to field duplicate imprecision
j-h	estimated due to holding time exceedance
j-i	estimated due to internal standard areas
j-l	estimated due to LCS recoveries
j-m	estimated due to matrix spike recoveries
j-r	estimated due to quantitation problem
j-s	estimated due to surrogate recoveries
j-t	estimated due to preservation temperature exceedance
j-x	estimated due to low % solids
j-y	estimated due to serial dilution results
j-z	estimated due to ICS results
r-c	rejected due to calibration
r-h	rejected due to holding time exceedance
r-l	rejected due to LCS recoveries
r-m	rejected due to matrix spike recoveries
r-s	rejected due to surrogate recoveries
u-be	negated due to equipment blank contamination
u-bl	negated due to lab blank contamination
uj-a	estimated nondetect due to low abundance (radiochemical activity)
uj-b	estimated nondetect due to negative blank contamination (nondetect results only)
uj-be	estimated nondetect due to negative equipment blank contamination (nondetect results only)
uj-bl	estimated nondetect due to negative lab blank contamination (nondetect results only)
uj-c	estimated nondetect due to calibration issues
uj-cp	estimated nondetect due to insufficient ingrowth (radiochemical only)
uj-d	estimated nondetect due to lab duplicate imprecision (matrix duplicate, MSD, LCSD)
uj-f	estimated nondetect due to field duplicate imprecision
uj-h	estimated nondetect due to holding time exceedance
uj-i	estimated nondetect due to internal standard areas
uj-l	estimated nondetect due to LCS recoveries
uj-m	estimated nondetect due to matrix spike recoveries
uj-q	estimated nondetect level changed due to quantitation problem
uj-s	estimated nondetect due to surrogate recoveries
uj-t	estimated nondetect due to preservation temperature exceedance
uj-x	estimated nondetect due to low % solids
uj-z	estimated nondetect due to ICS results
u-q	nondetected level changed due to quantitation problem

Table E-3
Qualifications Based on DQI Exceedances
Annual Performance Report for Chromium and Perchlorate
Henderson, Nevada
July 2006 - June 2007

Sample ID	SDG	Method	Analyte	Result	Units	Validation Qualifier	Reason Code	DQI	DQI Result
EB050107_05/01/07	203319	EPA 160.1	Total Dissolved Solids	10	mg/l	J+	j-be	Blanks	104 mg/L
EB-1_05/01/07	203332	EPA 160.1	Total Dissolved Solids	40	mg/l	J+	j-be	Blanks	104 mg/L
EB-2_05/02/07	203411	EPA 160.1	Total Dissolved Solids	38	mg/l	J+	j-be	Blanks	62 mg/L
EB050207_05/02/07	203423	EPA 160.1	Total Dissolved Solids	51	mg/l	J+	j-be	Blanks	104 mg/L
EB050307_05/03/07	203590	EPA 160.1	Total Dissolved Solids	29	mg/l	J+	j-be	Blanks	104 mg/L
EB043007_04/30/07	203157R	EPA 160.1	Total Dissolved Solids	10	mg/l	J+	j-be	Blanks	104 mg/L
EFFLUENT_01/29/07	194620	EPA 300.0	Nitrate (as N)	0.625	mg/l	UJ	uj-c	Calibration	no CCV
INFLUENT_01/29/07	194620	EPA 300.0	Nitrate (as N)	15.6	mg/l	J	j-c	Calibration	no CCV
I-V_05/03/07	203591	EPA 160.1	Total Dissolved Solids	14000	mg/l	J	j-f	Field Duplicates	108% RPD
I-V_05/03/07	203591	EPA 314	Perchlorate	1650000	ug/l	J	j-f	Field Duplicates	108% RPD
M-100_05/03/07	203591	EPA 160.1	Total Dissolved Solids	546	mg/l	J	j-f	Field Duplicates	108% RPD
M-100_05/03/07	203591	EPA 314	Perchlorate	12900	ug/l	J	j-f	Field Duplicates	108% RPD
M-101_05/03/07	203591	EPA 160.1	Total Dissolved Solids	3390	mg/l	J	j-f	Field Duplicates	108% RPD
M-101_05/03/07	203591	EPA 314	Perchlorate	100000	ug/l	J	j-f	Field Duplicates	108% RPD
M-102_05/03/07	203591	EPA 160.1	Total Dissolved Solids	1920	mg/l	J	j-f	Field Duplicates	108% RPD
M-102_05/03/07	203591	EPA 314	Perchlorate	92100	ug/l	J	j-f	Field Duplicates	108% RPD
M-12A_05/03/07	203591	EPA 160.1	Total Dissolved Solids	7910	mg/l	J	j-f	Field Duplicates	108% RPD
M-12A_05/03/07	203591	EPA 314	Perchlorate	283000	ug/l	J	j-f	Field Duplicates	108% RPD
M-13_05/03/07	203591	EPA 160.1	Total Dissolved Solids	3310	mg/l	J	j-f	Field Duplicates	108% RPD
M-13_05/03/07	203591	EPA 314	Perchlorate	18600	ug/l	J	j-f	Field Duplicates	108% RPD
M-36_05/03/07	203591	EPA 160.1	Total Dissolved Solids	15400	mg/l	J	j-f	Field Duplicates	108% RPD
M-36_05/03/07	203591	EPA 314	Perchlorate	1510000	ug/l	J	j-f	Field Duplicates	108% RPD
M-36_05/03/07	203591	SW 846 7196	Chromium-hexavalent	38	mg/l	J	j-h	Holding Time	1.07 days
M-68_05/03/07	203591	EPA 160.1	Total Dissolved Solids	5610	mg/l	J	j-f	Field Duplicates	108% RPD
M-68_05/03/07	203591	EPA 314	Perchlorate	35400	ug/l	J	j-f	Field Duplicates	108% RPD
M-73_05/03/07	203591	EPA 160.1	Total Dissolved Solids	2120	mg/l	J	j-f	Field Duplicates	108% RPD
M-73_05/03/07	203591	EPA 314	Perchlorate	86100	ug/l	J	j-f	Field Duplicates	108% RPD
M-74_05/03/07	203591	EPA 160.1	Total Dissolved Solids	6010	mg/l	J	j-f	Field Duplicates	108% RPD
M-74_05/03/07	203591	EPA 314	Perchlorate	33900	ug/l	J	j-f	Field Duplicates	108% RPD
M-83_05/03/07	203591	EPA 160.1	Total Dissolved Solids	1040	mg/l	J	j-f	Field Duplicates	108% RPD
M-83_05/03/07	203591	EPA 314	Perchlorate	7070	ug/l	J	j-f	Field Duplicates	108% RPD
M-84_05/03/07	203591	EPA 160.1	Total Dissolved Solids	1250	mg/l	J	j-f	Field Duplicates	108% RPD

Table E-3
Qualifications Based on DQI Exceedances
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Sample ID	SDG	Method	Analyte	Result	Units	Validation Qualifier	Reason Code	DQI	DQI Result
M-84_05/03/07	203591	EPA 314	Perchlorate	4100	ug/l	J	j-f	Field Duplicates	108% RPD
M-85_05/03/07	203591	EPA 160.1	Total Dissolved Solids	958	mg/l	J	j-f	Field Duplicates	108% RPD
M-85_05/03/07	203591	EPA 314	Perchlorate	17800	ug/l	J	j-f	Field Duplicates	108% RPD
M-86_05/03/07	203591	EPA 160.1	Total Dissolved Solids	3240	mg/l	J	j-f	Field Duplicates	108% RPD
M-86_05/03/07	203591	EPA 314	Perchlorate	295000	ug/l	J	j-f	Field Duplicates	108% RPD
M-87_05/03/07	203591	EPA 160.1	Total Dissolved Solids	2030	mg/l	J	j-f	Field Duplicates	108% RPD
M-87_05/03/07	203591	EPA 314	Perchlorate	121000	ug/l	J	j-f	Field Duplicates	108% RPD
M-88_05/03/07	203591	EPA 160.1	Total Dissolved Solids	6260	mg/l	J	j-f	Field Duplicates	108% RPD
M-88_05/03/07	203591	EPA 314	Perchlorate	47800	ug/l	J	j-f	Field Duplicates	108% RPD
M-92_05/03/07	203591	EPA 160.1	Total Dissolved Solids	1920	mg/l	J	j-f	Field Duplicates	108% RPD
M-92_05/03/07	203591	EPA 314	Perchlorate	695	ug/l	J	j-f	Field Duplicates	108% RPD
M-97_05/03/07	203591	EPA 160.1	Total Dissolved Solids	3770	mg/l	J	j-f	Field Duplicates	108% RPD
M-97_05/03/07	203591	EPA 314	Perchlorate	76800	ug/l	J	j-f	Field Duplicates	108% RPD
MD-2_05/03/07	203591	EPA 160.1	Total Dissolved Solids	1830	mg/l	J	j-f	Field Duplicates	108% RPD
MD-2_05/03/07	203591	EPA 314	Perchlorate	43400	ug/l	J	j-f	Field Duplicates	108% RPD
INFLUENT_01/08/07	192735	EPA 218.6	Chromium-hexavalent	1.7	ug/l	J	j-h	Holding Time	1.25 days
INFLUENT_02/05/07	195316	EPA 218.6	Chromium-hexavalent	69	ug/l	J	j-h	Holding Time	1.41 days
EFFLUENT_02/05/07	195316	EPA 218.6	Chromium-hexavalent	0.100	ug/l	UJ	uj-h	Holding Time	1.41 days
EFFLUENT_02/05/07	195318	EPA 300.0	Nitrate (as N)	5.000	mg/l	UJ	uj-h	Holding Time	2.29 days
EFFLUENT_03/19/07	199076	EPA 218.6	Chromium-hexavalent	0.100	ug/l	UJ	uj-h	Holding Time	1.01 days
INFLUENT_03/19/07	199076	EPA 218.6	Chromium-hexavalent	7.3	ug/l	J	j-h	Holding Time	1.02 days
FB-1_04/30/07	203068	SW 846 7196	Chromium-hexavalent	0.005	mg/l	UJ	uj-h	Holding Time	1.24 days
MD-1_04/30/07	203068	SW 846 7196	Chromium-hexavalent	0.99	mg/l	J	j-h	Holding Time	1.58 days
M-37_05/01/07	203332	SW 846 7196	Chromium-hexavalent	0.1	mg/l	UJ	uj-h	Holding Time	1.16 days
M-10_05/01/07	203332	SW 846 7196	Chromium-hexavalent	0.016	mg/l	J	j-h	Holding Time	1.17 days
EB-1_05/01/07	203332	SW 846 7196	Chromium-hexavalent	0.005	mg/l	UJ	uj-h	Holding Time	1.27 days
EB-2_05/02/07	203411	SW 846 7196	Chromium-hexavalent	0.005	mg/l	UJ	uj-h	Holding Time	1.02
FB050307_05/03/07	203590	EPA 160.1	Total Dissolved Solids	104	mg/l	J-	j-h	Holding Time	11.65 days
M-12A_05/03/07	203591	SW 846 7196	Chromium-hexavalent	14	mg/l	J	j-h	Holding Time	1.01 days
M-100_05/03/07	203591	SW 846 7196	Chromium-hexavalent	0.27	mg/l	J	j-h	Holding Time	1.02 days
M-84_05/03/07	203591	SW 846 7196	Chromium-hexavalent	0.046	mg/l	J	j-h	Holding Time	1.03 days
MD-2_05/03/07	203591	SW 846 7196	Chromium-hexavalent	0.31	mg/l	J	j-h	Holding Time	1.50 days

Table E-3
Qualifications Based on DQI Exceedances
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Sample ID	SDG	Method	Analyte	Result	Units	Validation Qualifier	Reason Code	DQI	DQI Result
M67D_05/04/07	203614	EPA 160.1	Total Dissolved Solids	7620	mg/l	J-	j-h	Holding Time	10.88 days
ART-1_05/07/07	203746	EPA 160.1	Total Dissolved Solids	82700	mg/l	J-	j-h	Holding Time	24.23 days
ART-2_05/07/07	203746	EPA 160.1	Total Dissolved Solids	10600	mg/l	J-	j-h	Holding Time	24.23 days
ART-3_05/07/07	203746	EPA 160.1	Total Dissolved Solids	88300	mg/l	J-	j-h	Holding Time	24.23 days
ART-4_05/07/07	203746	EPA 160.1	Total Dissolved Solids	6550	mg/l	J-	j-h	Holding Time	24.23 days
ART-7_05/07/07	203746	EPA 160.1	Total Dissolved Solids	10600	mg/l	J-	j-h	Holding Time	24.23 days
ART-8_05/07/07	203746	EPA 160.1	Total Dissolved Solids	10040	mg/l	J-	j-h	Holding Time	24.23 days
PC-117_05/21/07	205321	EPA 160.1	Total Dissolved Solids	4110	mg/l	J-	j-h	Holding Time	16.31 days
EFFLUENT_05/21/07	205408	EPA 300.0	Nitrate (as N)	5	mg/l	UJ	uj-h	Holding Time	2.13 days
SF-1_06/11/07	207169	EPA 160.1	Total Dissolved Solids	6400	mg/l	J-	j-h	Holding Time	11.38 days
PC-122_06/11/07	207600	EPA 160.1	Total Dissolved Solids	9520	mg/l	J-	j-h	Holding Time	8.19 days
PC-68_06/11/07	207600	EPA 160.1	Total Dissolved Solids	2140	mg/l	J-	j-h	Holding Time	8.20 days
PC-62_06/11/07	207600	EPA 160.1	Total Dissolved Solids	3450	mg/l	J-	j-h	Holding Time	8.21 days
PC-59_06/11/07	207600	EPA 160.1	Total Dissolved Solids	5140	mg/l	J-	j-h	Holding Time	8.21 days
PC-60_06/11/07	207600	EPA 160.1	Total Dissolved Solids	3970	mg/l	J-	j-h	Holding Time	8.21 days
PC-56_06/11/07	207600	EPA 160.1	Total Dissolved Solids	4380	mg/l	J-	j-h	Holding Time	8.22 days
PC-58_06/11/07	207600	EPA 160.1	Total Dissolved Solids	6000	mg/l	J-	j-h	Holding Time	8.22 days
PC-121_06/18/07	207885	EPA 160.1	Total Dissolved Solids	2650	mg/l	J-	j-h	Holding Time	17.31 days
EFFLUENT_03/26/07	199684	EPA 218.6	Chromium-hexavalent	0.100	ug/l	UJ	uj-m	Matrix Spikes	79.5%-71.5%
INFLUENT_03/26/07	199684	EPA 218.6	Chromium-hexavalent	4.7	ug/l	J-	j-m	Matrix Spikes	79.5%-71.5%
EFFLUENT_02/05/07	195318	EPA 300.1B	Chlorate	50.000	ug/l	UJ	uj-t	Temperature	11°C
EFFLUENT_02/05/07	195318	EPA 314	Perchlorate	10.000	ug/l	UJ	uj-t	Temperature	11°C
INFLUENT_02/05/07	195318	EPA 300.0	Nitrate (as N)	17	mg/l	J-	j-t	Temperature	11°C
INFLUENT_02/05/07	195318	EPA 300.1B	Chlorate	411000	ug/l	J-	j-t	Temperature	11°C
INFLUENT_02/05/07	195318	EPA 314	Perchlorate	203000	ug/l	J-	j-t	Temperature	11°C

Table E-4
Samples IDs, SDGs, and Analyses
Annual Performance Report for Chromium and Perchlorate
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SDG	SampleID	EPA 160_1 TDS	EPA 200_7 Total Cr	EPA 218_6 Cr(VI)	EPA 300_0 Nitrate (as N)	EPA 300_1B Chlorate	EPA 314 Perchlorate	SW 846 6010B Cr	SW 846 7196 Cr(VI)	SW 846 9056 Chlorate	SW 846 9056 Nitrate (as N)
180764	EFFLUENT-COMP_08/05/06						X				
180764	INFLUENT-COMP_08/05/06						X				
191948	EFFLUENT-COMP_12/23/06						X				
191948	INFLUENT-COMP_12/23/06						X				
192296	**EFFLUENT_01/02/07**		**X**		**X**	**X**	**X**				
192296	**INFLUENT_01/02/07**		**X**		**X**	**X**	**X**				
192305	EFFLUENT_01/02/07			X							
192305	INFLUENT_01/02/07			X							
192314	EFFLUENT-COMP_12/30/06						X				
192314	INFLUENT-COMP_12/30/06						X				
192735	EFFLUENT_01/08/07			X							
192735	INFLUENT_01/08/07			X							
192741	EFFLUENT-COMP_01/06/07						X				
192741	INFLUENT-COMP_01/06/07						X				
192802	**EFFLUENT_01/08/07**		**X**		**X**	**X**	**X**				
192802	**INFLUENT_01/08/07**		**X**		**X**	**X**	**X**				
193311	EFFLUENT-COMP_01/13/07						X				
193311	INFLUENT-COMP_01/13/07						X				
193318	EFFLUENT_01/15/07			X							
193318	INFLUENT_01/15/07			X							
193331	EFFLUENT_01/15/07		X		X	X	X				
193331	INFLUENT_01/15/07		X		X	X	X				
194029	EFFLUENT_01/22/07			X							
194029	INFLUENT_01/22/07			X							
194066	EFFLUENT_01/22/07		X		X	X	X				
194066	INFLUENT_01/22/07		X		X	X	X				
194072	EFFLUENT-COMP_01/20/07						X				
194072	INFLUENT-COMP_01/20/07						X				
194581	EFFLUENT_01/29/07			X							
194581	INFLUENT_01/29/07			X							
194620	**EFFLUENT_01/29/07**		**X**		**X**	**X**	**X**				
194620	**INFLUENT_01/29/07**		**X**		**X**	**X**	**X**				
194719	EFFLUENT-COMP_01/27/07						X				
194719	INFLUENT-COMP_01/27/07						X				
195314	EFFLUENT-COMP_02/03/07						X				
195314	INFLUENT-COMP_02/03/07						X				
195316	EFFLUENT_02/05/07			X							
195316	INFLUENT_02/05/07			X							
195318	EFFLUENT_02/05/07		X		X	X	X				

Table E-4
Samples IDs, SDGs, and Analyses
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SDG	SampleID	EPA 160_1 TDS	EPA 200_7 Total Cr	EPA 218_6 Cr(VI)	EPA 300_0 Nitrate (as N)	EPA 300_1B Chlorate	EPA 314 Perchlorate	SW 846 6010B Cr	SW 846 7196 Cr(VI)	SW 846 9056 Chlorate	SW 846 9056 Nitrate (as N)
195318	INFLUENT_02/05/07		X		X	X	X				
195932	EFFLUENT_02/12/07			X							
195932	INFLUENT_02/12/07			X							
195979	EFFLUENT-COMP_02/10/07						X				
195979	INFLUENT-COMP_02/10/07						X				
195993	EFFLUENT_02/12/07		X		X	X	X				
195993	INFLUENT_02/12/07		X		X	X	X				
196536	EFFLUENT-COMP_02/17/07						X				
196536	INFLUENT-COMP_02/17/07						X				
196537	EFFLUENT_02/19/07			X							
196537	INFLUENT_02/19/07			X							
196539	EFFLUENT_02/19/07		X		X	X	X				
196539	INFLUENT_02/19/07		X		X	X	X				
197212	EFFLUENT_02/26/07		X		X	X	X				
197212	INFLUENT_02/26/07		X		X	X	X				
197237	**EFFLUENT_02/26/07**			**X**							
197237	**INFLUENT_02/26/07**			**X**							
197247	EFFLUENT-COMP_02/24/07						X				
197247	INFLUENT-COMP_02/24/07						X				
197807	EFFLUENT-COMP_03/03/07						X				
197807	INFLUENT-COMP_03/03/07						X				
198145	EFFLUENT_03/07/07		X		X	X	X				
198145	INFLUENT_03/07/07		X		X	X	X				
198149	EFFLUENT_03/07/07			X							
198149	INFLUENT_03/07/07			X							
198443	EFFLUENT-COMP_03/10/07						X				
198443	INFLUENT-COMP_03/10/07						X				
198457	EFFLUENT_03/12/07			X							
198457	INFLUENT_03/12/07			X							
198527	EFFLUENT_03/12/07		X		X	X	X				
198527	INFLUENT_03/12/07		X		X	X	X				
199076	EFFLUENT_03/19/07			X							
199076	INFLUENT_03/19/07			X							
199093	EFFLUENT-COMP_03/17/07						X				
199093	INFLUENT-COMP_03/17/07						X				
199120	EFFLUENT_03/19/07		X		X	X	X				
199120	INFLUENT_03/19/07		X		X	X	X				
199439	INFLUENT-COMP_03/03/07						X				
199684	**EFFLUENT_03/26/07**			**X**							

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SDG	SampleID	EPA 160_1 TDS	EPA 200_7 Total Cr	EPA 218_6 Cr(VI)	EPA 300_0 Nitrate (as N)	EPA 300_1B Chlorate	EPA 314 Perchlorate	SW 846 6010B Cr	SW 846 7196 Cr(VI)	SW 846 9056 Chlorate	SW 846 9056 Nitrate (as N)
199684	**INFLUENT_03/26/07**			**X**							
199707	ART-1_03/26/07	X					X				
199707	ART-2_03/26/07	X					X				
199707	ART-3_03/26/07	X					X				
199707	ART-4_03/26/07	X					X				
199707	ART-6_03/26/07	X					X				
199707	ART-7_03/26/07	X					X				
199707	ART-8_03/26/07	X					X				
199707	ART-9_03/26/07	X					X				
199707	PC-115R_03/26/07	X					X				
199707	PC-116R_03/26/07	X					X				
199707	PC-117_03/26/07	X					X				
199707	PC-118_03/26/07	X					X				
199707	PC-119_03/26/07	X					X				
199707	PC-120_03/26/07	X					X				
199707	PC-121_03/26/07	X					X				
199707	PC-133_03/26/07	X					X				
199707	PC-99R2/R3_03/26/07	X					X				
199707	SEEP SURFACE FLOW_03/2	X					X				
199707	SF-1_03/26/07	X					X				
199749	EFFLUENT-COMP_03/24/07						X				
199749	INFLUENT-COMP_03/24/07						X				
200346	EFFLUENT-COMP_03/31/07						X				
200346	INFLUENT-COMP_03/31/07						X				
200347	EFFLUENT_04/02/07		X		X	X	X				
200347	INFLUENT_04/02/07		X		X	X	X				
200564	EFFLUENT_04/03/07			X							
200564	INFLUENT_04/03/07			X							
201017	EFFLUENT_04/09/07			X							
201017	INFLUENT_04/09/07			X							
201058	EFFLUENT-COMP_04/07/07						X				
201058	INFLUENT-COMP_04/07/07						X				
201080	EFFLUENT_04/09/07		X		X	X	X				
201080	INFLUENT_04/09/07		X		X	X	X				
201550	ARP-1_04/11/07	X					X				
201550	ARP-2_04/11/07	X					X				
201550	ARP-3_04/11/07	X					X				
201550	ARP-7_04/12/07	X					X				
201550	L-635_04/10/07	X					X				

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201550	L-637_04/10/07	X					X				
201550	M-83_04/12/07	X					X				
201550	M-87_04/12/07	X					X				
201550	MWK-4_04/11/07	X					X				
201550	MWK-5_04/12/07	X					X				
201550	PC-101R_04/11/07	X					X				
201550	PC-103_04/12/07	X					X				
201550	PC-122_04/09/07	X					X				
201550	PC-17_04/11/07	X					X				
201550	PC-18_04/11/07	X					X				
201550	PC-53_04/12/07	X					X				
201550	PC-55_04/10/07	X					X				
201550	PC-56_04/09/07	X					X				
201550	PC-58_04/09/07	X					X				
201550	PC-59_04/09/07	X					X				
201550	PC-60_04/09/07	X					X				
201550	PC-62_04/09/07	X					X				
201550	PC-68_04/09/07	X					X				
201550	PC-86_04/11/07	X					X				
201550	PC-90_04/11/07	X					X				
201550	PC-91_04/11/07	X					X				
201550	PC-95_04/11/07	X					X				
201550	PC-97_04/11/07	X					X				
201550	PC-98R_04/12/07	X					X				
201775	ART-1_04/16/07	X					X				
201775	ART-2_04/16/07	X					X				
201775	ART-3_04/16/07	X					X				
201775	ART-4_04/16/07	X					X				
201775	ART-6_04/16/07	X					X				
201775	ART-7_04/16/07	X					X				
201775	ART-8_04/16/07	X					X				
201775	ART-9_04/16/07	X					X				
201775	PC-115R_04/16/07	X					X				
201775	PC-116R_04/16/07	X					X				
201775	PC-117_04/16/07	X					X				
201775	PC-118_04/16/07	X					X				
201775	PC-119_04/16/07	X					X				
201775	PC-120_04/16/07	X					X				
201775	PC-121_04/16/07	X					X				

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SDG	SampleID	EPA 160_1 TDS	EPA 200_7 Total Cr	EPA 218_6 Cr(VI)	EPA 300_0 Nitrate (as N)	EPA 300_1B Chlorate	EPA 314 Perchlorate	SW 846 6010B Cr	SW 846 7196 Cr(VI)	SW 846 9056 Chlorate	SW 846 9056 Nitrate (as N)
201775	PC-133_04/16/07	X					X				
201775	PC-99R2/R3_04/16/07	X					X				
201775	SEEP SURFACE FLOW_04/1	X					X				
201775	SF-1_04/16/07	X					X				
201811	EFFLUENT-COMP_04/14/07						X				
201811	INFLUENT-COMP_04/14/07						X				
201958	EFFLUENT_04/17/07			X							
201958	INFLUENT_04/17/07			X							
202425	EFFLUENT-COMP_04/21/07						X				
202425	INFLUENT-COMP_04/21/07						X				
202436	ART-1_04/23/07	X					X				
202436	ART-2_04/23/07	X					X				
202436	ART-3_04/23/07	X					X				
202436	ART-4_04/23/07	X					X				
202436	ART-6_04/23/07	X					X				
202436	ART-7_04/23/07	X					X				
202436	ART-8_04/23/07	X					X				
202436	ART-9_04/23/07	X					X				
202436	PC-115R_04/23/07	X					X				
202436	PC-116R_04/23/07	X					X				
202436	PC-117_04/23/07	X					X				
202436	PC-118_04/23/07	X					X				
202436	PC-119_04/23/07	X					X				
202436	PC-120_04/23/07	X					X				
202436	PC-121_04/23/07	X					X				
202436	PC-133_04/23/07	X					X				
202436	PC-99R2/R3_04/23/07	X					X				
202436	SEEP SURFACE FLOW_04/2	X					X				
202436	SF-1_04/23/07	X					X				
202443	EFFLUENT_04/23/07		X	X	X	X	X				
202443	INFLUENT_04/23/07		X	X	X	X	X				
203058	EFFLUENT_04/30/07		X	X	X	X	X				
203058	INFLUENT_04/30/07		X	X	X	X	X				
203068	FB-1_04/30/07	X					X	X	X		
203068	M-23_04/30/07	X					X	X		X	X
203068	M-44_04/30/07	X					X	X	X		
203068	M-48_04/30/07	X					X	X		X	X
203068	M-94_04/30/07	X					X	X	X		
203068	M-95_04/30/07	X					X	X			

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SDG	SampleID	EPA 160_1 TDS	EPA 200_7 Total Cr	EPA 218_6 Cr(VI)	EPA 300_0 Nitrate (as N)	EPA 300_1B Chlorate	EPA 314 Perchlorate	SW 846 6010B Cr	SW 846 7196 Cr(VI)	SW 846 9056 Chlorate	SW 846 9056 Nitrate (as N)
203068	M-96_04/30/07	X					X	X			
203068	MD-1_04/30/07	X					X	X	X		
203068	MD-3_04/30/07	X					X	X			
203068	MD-5_04/30/07	X					X	X		X	X
203068	PC-123_04/30/07	X					X	X			
203068	PC-124_04/30/07	X					X	X		X	X
203068	PC-125_04/30/07	X					X	X			
203068	PC-126_04/30/07	X					X	X		X	X
203068	PC-128_04/30/07	X					X	X		X	X
203068	PC-129_04/30/07	X					X	X			
203068	PC-130_04/30/07	X					X	X		X	X
203068	PC-131_04/30/07	X					X	X			
203068	PC-132_04/30/07	X					X	X		X	X
203068	PC-37_04/30/07	X					X	X			
203068	PC-54_04/30/07	X					X	X			
203068	PC-71_04/30/07	X					X	X			
203068	PC-72_04/30/07	X					X	X			
203068	PC-73_04/30/07	X					X	X			
203096	EFFLUENT-COMP_04/28/07						X				
203096	INFLUENT-COMP_04/28/07						X				
203157R	**EB043007_04/30/07**	**X**					**X**	**X**		**X**	**X**
203157_rev	**PC4_04/30/07**						**X**	**X**			
203157_rev	**PC77_04/30/07**						**X**	**X**			
203157_rev	**PC79_04/30/07**	**X**					**X**	**X**			
203157_rev	**PC82_04/30/07**	**X**					**X**			**X**	**X**
203157_rev	**PC86_04/30/07**	**X**						**X**			
203157_rev	**PC92_04/30/07**	**X**					**X**	**X**		**X**	**X**
203157_rev	**PC93_04/30/07**						**X**	**X**			**X**
203157_rev	**PC96_04/30/07**	**X**					**X**				
203166	ART-1_04/30/07	X					X				
203166	ART-2_04/30/07	X					X				
203166	ART-3_04/30/07	X					X				
203166	ART-4_04/30/07	X					X				
203166	ART-6_04/30/07	X					X				
203166	ART-7_04/30/07	X					X				
203166	ART-8_04/30/07	X					X				
203166	ART-9_04/30/07	X					X				
203166	PC-115R_04/30/07	X					X				
203166	PC-116R_04/30/07	X					X				

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SDG	SampleID	EPA 160_1 TDS	EPA 200_7 Total Cr	EPA 218_6 Cr(VI)	EPA 300_0 Nitrate (as N)	EPA 300_1B Chlorate	EPA 314 Perchlorate	SW 846 6010B Cr	SW 846 7196 Cr(VI)	SW 846 9056 Chlorate	SW 846 9056 Nitrate (as N)
203166	PC-117_04/30/07	X					X				
203166	PC-118_04/30/07	X					X				
203166	PC-119_04/30/07	X					X				
203166	PC-120_04/30/07	X					X				
203166	PC-121_04/30/07	X					X				
203166	PC-133_04/30/07	X					X				
203166	PC-99R2/R3_04/30/07	X					X				
203166	SEEP SURFACE FLOW_04/3	X					X				
203166	SF-1_04/30/07	X					X				
203319	EB050107_05/01/07	X						X			X
203319	HM2_05/01/07	X									
203319	HSW-1_05/01/07						X				
203319	LK3_05/01/07	X					X				
203319	PC1_05/01/07	X					X	X			
203319	PC107_05/01/07	X					X				
203319	PC108_05/01/07						X				
203319	PC2_05/01/07	X						X			
203319	PC2D_05/01/07	X					X	X			X
203319	PC62_05/01/07							X			
203319	PC65_05/01/07	X					X	X			
203319	PC66_05/01/07	X						X			
203319	PC66D_05/01/07	X					X	X			
203319	PC67_05/01/07						X	X			
203321	M-10_05/01/07	X	X		X						
203332	**EB-1_05/01/07**	**X**					**X**	**X**	**X**		
203332	**I-AR_05/01/07**	**X**					**X**	**X**			
203332	**I-B_05/01/07**	**X**					**X**	**X**			
203332	**I-C_05/01/07**	**X**					**X**	**X**			
203332	**I-D_05/01/07**	**X**					**X**	**X**			
203332	**I-E_05/01/07**	**X**					**X**	**X**			
203332	**I-F_05/01/07**	**X**					**X**	**X**			
203332	**I-H_05/01/07**	**X**					**X**	**X**			
203332	**I-L_05/01/07**	**X**					**X**	**X**			
203332	**I-M_05/01/07**	**X**					**X**	**X**			
203332	**I-N_05/01/07**	**X**					**X**	**X**			
203332	**I-O_05/01/07**	**X**					**X**	**X**			
203332	**I-P_05/01/07**	**X**					**X**	**X**			
203332	**I-Q_05/01/07**	**X**					**X**	**X**			
203332	**I-R_05/01/07**	**X**					**X**	**X**			

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SDG	SampleID	EPA 160_1 TDS	EPA 200_7 Total Cr	EPA 218_6 Cr(VI)	EPA 300_0 Nitrate (as N)	EPA 300_1B Chlorate	EPA 314 Perchlorate	SW 846 6010B Cr	SW 846 7196 Cr(VI)	SW 846 9056 Chlorate	SW 846 9056 Nitrate (as N)
203332	**I-S_05/01/07**	**X**					**X**	**X**			
203332	**I-T_05/01/07**	**X**					**X**	**X**			
203332	**I-U_05/01/07**	**X**					**X**	**X**			
203332	**M-10_05/01/07**	**X**					**X**	**X**	**X**	**X**	**X**
203332	**M-25_05/01/07**	**X**					**X**	**X**		**X**	**X**
203332	**M-37_05/01/07**	**X**					**X**	**X**	**X**	**X**	**X**
203332	**M-57A_05/01/07**	**X**					**X**	**X**			
203332	**M-69_05/01/07**	**X**					**X**	**X**			
203332	**M-79_05/01/07**	**X**					**X**	**X**			
203332	**M-98_05/01/07**	**X**					**X**	**X**			
203332	**M-99_05/01/07**	**X**					**X**	**X**			
203332	**MD-4_05/01/07**	**X**					**X**	**X**			
203332	**PC-127_05/01/07**	**X**					**X**	**X**			
203401	H-28A_05/02/07	X					X	X			
203401	M-5A_05/02/07	X					X	X			
203401	M-6A_05/02/07	X					X	X			
203401	M-7B_05/02/07	X					X	X			
203411	EB-2_05/02/07	X					X	X	X		
203411	M-11_05/02/07	X					X	X	X	X	X
203411	M-19_05/02/07	X					X	X			
203411	M-21_05/02/07	X					X	X			
203411	M-31A_05/02/07	X					X	X			
203411	M-39_05/02/07	X					X	X		X	X
203411	M-50_05/02/07	X					X	X			
203411	M-52_05/02/07	X					X	X			
203411	M-77_05/02/07	X					X	X			
203423	EB050207_05/02/07	X					X	X		X	X
203423	HMW13_05/02/07	X					X				
203423	HMW14_05/02/07	X					X				
203423	HMW15_05/02/07	X					X				
203423	HMW16_05/02/07	X					X				
203423	M34_05/02/07	X					X	X			
203423	M35_05/02/07	X					X	X			
203423	PC104_05/02/07	X					X	X			
203423	PC110_05/02/07	X					X				
203423	PC112_05/02/07	X					X				
203423	PC21A_05/02/07	X					X	X		X	X
203423	PC24_05/02/07	X					X	X			
203423	PC28_05/02/07	X					X	X			

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SDG	SampleID	EPA 160_1 TDS	EPA 200_7 Total Cr	EPA 218_6 Cr(VI)	EPA 300_0 Nitrate (as N)	EPA 300_1B Chlorate	EPA 314 Perchlorate	SW 846 6010B Cr	SW 846 7196 Cr(VI)	SW 846 9056 Chlorate	SW 846 9056 Nitrate (as N)
203423	PC31_05/02/07	X					X	X			
203423	PC31D_05/02/07	X					X	X			
203423	PC50_05/02/07	X					X	X			
203423	PC64_05/02/07	X					X	X			
203590	EB050307_05/03/07	X					X	X		X	X
203590	FB050307_05/03/07	X					X	X		X	X
203590	H11_05/03/07	X					X				
203590	H48_05/03/07	X					X				
203590	M29_05/03/07	X					X	X		X	X
203590	M61_05/03/07	X					X	X			
203590	MC29_05/03/07	X					X				
203590	MC3_05/03/07	X					X				
203590	MC50_05/03/07	X					X				
203590	MC51_05/03/07	X					X				
203590	MC53_05/03/07	X					X	X			
203590	MC53D_05/03/07	X					X	X			
203590	MC6_05/03/07	X					X				
203590	MC65_05/03/07	X					X				
203590	MC69_05/03/07	X					X				
203590	MC7_05/03/07	X					X				
203590	MC93_05/03/07	X					X				
203590	MC97_05/03/07	X					X				
203590	PC40_05/03/07	X					X	X			
203590	PC73_05/03/07	X					X	X		X	X
203591	I-V_05/03/07	X					X	X			
203591	M-100_05/03/07	X					X	X	X		
203591	M-101_05/03/07	X					X	X			
203591	M-102_05/03/07	X					X	X			
203591	M-12A_05/03/07	X					X	X	X	X	X
203591	M-13_05/03/07	X					X	X		X	X
203591	M-36_05/03/07	X					X	X	X	X	X
203591	M-68_05/03/07	X					X	X			
203591	M-73_05/03/07	X					X	X			
203591	M-74_05/03/07	X					X	X			
203591	M-83_05/03/07	X					X	X			
203591	M-84_05/03/07	X					X	X	X		
203591	M-85_05/03/07	X					X	X			
203591	M-86_05/03/07	X					X	X			
203591	M-87_05/03/07	X					X	X			

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SDG	SampleID	EPA 160_1 TDS	EPA 200_7 Total Cr	EPA 218_6 Cr(VI)	EPA 300_0 Nitrate (as N)	EPA 300_1B Chlorate	EPA 314 Perchlorate	SW 846 6010B Cr	SW 846 7196 Cr(VI)	SW 846 9056 Chlorate	SW 846 9056 Nitrate (as N)
203591	M-88_05/03/07	X					X	X			
203591	M-92_05/03/07	X					X	X			
203591	M-97_05/03/07	X					X	X			
203591	MD-2_05/03/07	X					X	X	X		
203614	M103_05/04/07	X					X	X			
203614	M117_05/04/07	X					X	X			
203614	M118_05/04/07	X					X	X			
203614	M120_05/04/07	X					X	X			
203614	M121_05/04/07	X					X	X			
203614	M64_05/04/07	X					X	X			
203614	M65_05/04/07	X					X	X			
203614	M66_05/04/07	X					X	X			
203614	M67_05/04/07	X					X	X			
203614	M67D_05/04/07	X					X	X			
203746	**ART-1_05/07/07**	**X**	**X**				**X**				
203746	**ART-2_05/07/07**	**X**	**X**				**X**				
203746	**ART-3_05/07/07**	**X**	**X**				**X**				
203746	**ART-4_05/07/07**	**X**	**X**				**X**				
203746	**ART-6_05/07/07**	**X**	**X**				**X**				
203746	**ART-7_05/07/07**	**X**	**X**				**X**				
203746	**ART-8_05/07/07**	**X**	**X**				**X**				
203746	**ART-9_05/07/07**	**X**	**X**				**X**				
203746	**PC-115R_05/07/07**	**X**	**X**				**X**				
203746	**PC-116R_05/07/07**	**X**	**X**				**X**				
203746	**PC-117_05/07/07**	**X**	**X**				**X**				
203746	**PC-118_05/07/07**	**X**	**X**				**X**				
203746	**PC-119_05/07/07**	**X**	**X**				**X**				
203746	**PC-120_05/07/07**	**X**	**X**				**X**				
203746	**PC-121_05/07/07**	**X**	**X**				**X**				
203746	**PC-133_05/07/07**	**X**	**X**				**X**				
203746	**PC-99R2/R3_05/07/07**	**X**	**X**				**X**				
203746	**SEEP SURFACE FLOW_05/0**	**X**	**X**				**X**				
203746	**SF-1_05/07/07**	**X**	**X**				**X**				
203786	EFFLUENT-COMP_05/05/07						X				
203786	INFLUENT-COMP_05/05/07						X				
203814	**EFFLUENT_05/07/07**		**X**	**X**	**X**	**X**	**X**				
203814	**INFLUENT_05/07/07**		**X**	**X**	**X**	**X**	**X**				
204159	CLD1R_05/09/07	X					X	X			
204159	CLD2R_05/09/07	X					X	X			

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204523	EFFLUENT-COMP_05/12/07						X				
204523	INFLUENT-COMP_05/12/07						X				
204530	ART-1_05/14/07	X					X				
204530	ART-2_05/14/07	X					X				
204530	ART-3_05/14/07	X					X				
204530	ART-4_05/14/07	X					X				
204530	ART-6_05/14/07	X					X				
204530	ART-7_05/14/07	X					X				
204530	ART-8_05/14/07	X					X				
204530	ART-9_05/14/07	X					X				
204530	PC-115R_05/14/07	X					X				
204530	PC-116R_05/14/07	X					X				
204530	PC-117_05/14/07	X					X				
204530	PC-118_05/14/07	X					X				
204530	PC-119_05/14/07	X					X				
204530	PC-120_05/14/07	X					X				
204530	PC-121_05/14/07	X					X				
204530	PC-133_05/14/07	X					X				
204530	PC-99R2/R3_05/14/07	X					X				
204530	SEEP SURFACE FLOW_05/1	X					X				
204530	SF-1_05/14/07	X					X				
204609	MW-K4_05/14/07	X	X				X				
205321	ART-1_05/21/07	X					X				
205321	ART-2_05/21/07	X					X				
205321	ART-3_05/21/07	X					X				
205321	ART-4_05/21/07	X					X				
205321	ART-6_05/21/07	X					X				
205321	ART-7_05/21/07	X					X				
205321	ART-8_05/21/07	X					X				
205321	ART-9_05/21/07	X					X				
205321	PC-115R_05/21/07	X					X				
205321	PC-116R_05/21/07	X					X				
205321	PC-117_05/21/07	X					X				
205321	PC-118_05/21/07	X					X				
205321	PC-119_05/21/07	X					X				
205321	PC-120_05/21/07	X					X				
205321	PC-121_05/21/07	X					X				
205321	PC-133_05/21/07	X					X				
205321	PC-99R2/R3_05/21/07	X					X				

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205321	SF-1_05/21/07	X					X				
205397	EFFLUENT-COMP_05/19/07						X				
205397	INFLUENT-COMP_05/19/07						X				
205408	EFFLUENT_05/21/07		X	X	X	X	X				
205408	INFLUENT_05/21/07		X	X	X	X	X				
206010	EFFLUENT-COMP_05/26/07						X				
206010	INFLUENT-COMP_05/26/07						X				
206012	ART-1_05/29/07	X					X				
206012	ART-2_05/29/07	X					X				
206012	ART-3_05/29/07	X					X				
206012	ART-4_05/29/07	X					X				
206012	ART-6_05/29/07	X					X				
206012	ART-7_05/29/07	X					X				
206012	ART-8_05/29/07	X					X				
206012	ART-9_05/29/07	X					X				
206012	PC-115R_05/29/07	X					X				
206012	PC-116R_05/29/07	X					X				
206012	PC-117_05/29/07	X					X				
206012	PC-118_05/29/07	X					X				
206012	PC-119_05/29/07	X					X				
206012	PC-120_05/29/07	X					X				
206012	PC-121_05/29/07	X					X				
206012	PC-133_05/29/07	X					X				
206012	PC-99R2/R3_05/29/07	X					X				
206012	SF-1_05/29/07	X					X				
206014	EFFLUENT_05/29/07		X	X	X	X	X				
206014	INFLUENT_05/29/07		X	X	X	X	X				
206435	ART-1_06/04/07	X					X				
206435	ART-2_06/04/07	X					X				
206435	ART-3_06/04/07	X					X				
206435	ART-4_06/04/07	X					X				
206435	ART-6_06/04/07	X					X				
206435	ART-7_06/04/07	X					X				
206435	ART-8_06/04/07	X					X				
206435	ART-9_06/04/07	X					X				
206435	PC-115R_06/04/07	X					X				
206435	PC-116R_06/04/07	X					X				
206435	PC-117_06/04/07	X					X				
206435	PC-118_06/04/07	X					X				

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206435	PC-119_06/04/07	X					X				
206435	PC-120_06/04/07	X					X				
206435	PC-121_06/04/07	X					X				
206435	PC-133_06/04/07	X					X				
206435	PC-99R2/R3_06/04/07	X					X				
206435	SEEP SURFACE FLOW_06/0	X					X				
206435	SF-1_06/04/07	X					X				
206516	EFFLUENT-COMP_06/02/07						X				
206516	INFLUENT-COMP_06/02/07						X				
206546	EFFLUENT_06/04/07		X	X	X	X	X				
207164	EFFLUENT-COMP_06/09/07						X				
207164	INFLUENT-COMP_06/09/07						X				
207169	ART-1_06/11/07	X					X				
207169	ART-2_06/11/07	X					X				
207169	ART-3_06/11/07	X					X				
207169	ART-4_06/11/07	X					X				
207169	ART-6_06/11/07	X					X				
207169	ART-7_06/11/07	X					X				
207169	ART-8_06/11/07	X					X				
207169	ART-9_06/11/07	X					X				
207169	PC-115R_06/11/07	X					X				
207169	PC-116R_06/11/07	X					X				
207169	PC-117_06/11/07	X					X				
207169	PC-118_06/11/07	X					X				
207169	PC-119_06/11/07	X					X				
207169	PC-120_06/11/07	X					X				
207169	PC-121_06/11/07	X					X				
207169	PC-133_06/11/07	X					X				
207169	PC-99R2/R3_06/11/07	X					X				
207169	SF-1_06/11/07	X					X				
207230	**EFFLUENT_06/11/07**		**X**	**X**	**X**	**X**	**X**				
207230	**INFLUENT_06/11/07**		**X**	**X**	**X**	**X**	**X**				
207600	ARP-1_06/13/07	X					X				
207600	ARP-2_06/13/07	X					X				
207600	ARP-3_06/13/07	X					X				
207600	ARP-7_06/14/07	X					X				
207600	L-635_06/12/07	X					X				
207600	L-637_06/12/07	X					X				
207600	M-83_06/14/07	X					X				

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207600	M-87_06/14/07	X					X				
207600	MWK-4_06/13/07	X					X				
207600	MWK-5_06/14/07	X					X				
207600	PC-101R_06/13/07	X					X				
207600	PC-103_06/14/07	X					X				
207600	PC-122_06/11/07	X					X				
207600	PC-17_06/13/07	X					X				
207600	PC-18_06/13/07	X					X				
207600	PC-53_06/14/07	X					X				
207600	PC-55_06/12/07	X					X				
207600	PC-56_06/11/07	X					X				
207600	PC-58_06/11/07	X					X				
207600	PC-59_06/11/07	X					X				
207600	PC-60_06/11/07	X					X				
207600	PC-62_06/11/07	X					X				
207600	PC-68_06/11/07	X					X				
207600	PC-86_06/13/07	X					X				
207600	PC-90_06/13/07	X					X				
207600	PC-91_06/13/07	X					X				
207600	PC-95_06/13/07	X					X				
207600	PC-97_06/13/07	X					X				
207600	PC-98R_06/14/07	X					X				
207869	EFFLUENT-COMP_06/16/07						X				
207869	INFLUENT-COMP_06/16/07						X				
207885	ART-1_06/18/07	X					X				
207885	ART-2_06/18/07	X					X				
207885	ART-3_06/18/07	X					X				
207885	ART-4_06/18/07	X					X				
207885	ART-6_06/18/07	X					X				
207885	ART-7_06/18/07	X					X				
207885	ART-8_06/18/07	X					X				
207885	ART-9_06/18/07	X					X				
207885	PC-115R_06/18/07	X					X				
207885	PC-116R_06/18/07	X					X				
207885	PC-117_06/18/07	X					X				
207885	PC-118_06/18/07	X					X				
207885	PC-119_06/18/07	X					X				
207885	PC-120_06/18/07	X					X				
207885	PC-121_06/18/07	X					X				

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207885	PC-133_06/18/07	X					X				
207885	PC-99R2/R3_06/18/07	X					X				
207885	SF-1_06/18/07	X					X				
207940	EFFLUENT_06/18/07		X	X	X	X	X				
207940	INFLUENT_06/18/07		X	X	X	X	X				
208508	EFFLUENT-COMP_06/23/07						X				
208508	INFLUENT-COMP_06/23/07						X				

Note: SDGs indicated in **bold** were subjected to full data validation. All other SDGs underwent limited data validation only.

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Memorandum

Date:	October 26, 2007	
To:	Sally Bilodeau/Camarillo	
From:	Sheena Blair/Westford	
Subject:	Revised Data Review Routine Monitoring Program Annual Performance Report for Chromium and Perchlorate July 2006 - June 2007 Tronox LLC Henderson, Nevada	
Distribution:	Robert Kennedy/Westford	04020-023-110 1Qtr+2nd Qtr2007Full

SUMMARY

A Tier 2 validation was performed on the data for raw groundwater samples, raw surface water samples, equipment blanks, and field blanks analyzed for all or a subset of the following parameters:

- Perchlorate by EPA Method 314
- Hexavalent chromium by SW-846 Method 7196 or EPA Method 218.6
- Total chromium by SW846 6010B or EPA Method 200.7
- Total dissolved solids by Standard Methods (SM) 2540C
- Chlorate by EPA Method 300.0 or SW-846 Method 9056
- Nitrate as nitrogen by EPA 300.0 or SW-846 Method 9056

The samples were collected at the Tronox LLC site in Henderson, Nevada from February 19 through June 22, 2007 and submitted to MWH Laboratories in Monrovia, California for analysis. The MWH project numbers, sample collection dates, and analyses included in this review are summarized in Attachment A at the end of this memo. The data reports provided by MWH did not support a validation at the Tier 2 level as requested by NDEP. MWH was contacted and the information required to perform a Tier 2 validation was requested. All provided quality control (QC) elements submitted by MWH were reviewed and results of that are summarized below.

The sample results were assessed according to the "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review" (October 2004), the Region 9 Superfund Data Evaluation/Validation Guidance, NDEP guidance (May 2006), and by the laboratory QC criteria. The validation guidelines were modified to accommodate the non-CLP methodologies.

The data reviewed required minor qualification for selected samples and appear generally acceptable for decision making. No major problems were identified and no data were rejected.

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REVIEW ELEMENTS

Sample data were reviewed for the following elements:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Initial and continuing calibrations
- Interference check sample (ICS) results (total chromium only)
- Holding times and sample preservation
- Laboratory blanks/equipment blanks/field blanks
- Laboratory control sample/laboratory control sample duplicate (LCS/LCSD) results
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Laboratory duplicate results
- Field duplicate results
- ICP serial dilution results (total chromium only)
- Sample results/detection limits

DISCUSSION

Agreement of Analyses Conducted with COC Requests

Sample reports were checked to verify that the results reported corresponded to analytical requests as detailed on the COC documentation. The following discrepancies were noted:

- **Report number 192296**: The sample collection and relinquishing dates for samples influent and effluent were incorrectly listed on the COC as 1/8/2007. The date was corrected manually on the COC to 1/2/2007. No validation action was taken other than this notation.

- **Report number 203157R**: According to the MWH case narrative, this report was revised to correct the sample ID from PC91 to PC92, as per an email from Ed Krish (6/17/07). No validation action was taken other than this notation.

- It should be noted that sample results for chlorate and perchlorate in several data packages had analysis times on the "Laboratory Data Report" which did not match the analysis time as recorded on the instrument raw data. The laboratory was contacted about this issue and provided the following information: "Analysis time for tests with holding times greater than 72 hours is typically shown on reports either as 00:00 or defaults to the time of the first injection on a batch of samples and does not reflect the specific analysis time for the individual sample". No validation action was taken other than this notation.

Holding Times and Sample Preservation

Method-specified holding times were met for all samples analyzed except for the following:

- **Report number 203332**: The hexavalent chromium analyses for samples EB-1, M-10, and M-37 were performed a few hours outside of the method specified 24-hour holding time criterion.

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Detected and nondetect results for these samples were qualified as estimated (J and UJ, respectively).

- **Report number 203746**: The total dissolved solids analyses for samples ART-1, ART-2, ART-3, ART-4, ART-7, and ART-8 were performed 17 days beyond the method specified 7-day holding time criterion. The positive results for these samples were qualified as estimated, biased low (J-). Reanalysis of these samples was performed by the laboratory because the initial results were inconsistent with historical data for these wells.

The cooler temperatures upon receipt at the laboratory met the acceptable range of 4+ 2^{o}C.

Documentation regarding sample pH verification upon receipt at the laboratory for total chromium and hexavalent chromium was not included in the data package. No action was taken except for this notation.

It should be noted that as of April 11, 2007, the laboratory began use of preservation of hexavalent chromium samples with the ammonium sulfate buffer specified in EPA method 218.6. In accordance with the Code of Federal Register citation (40 CFR part 136, Table 2), a 28-day holding time is applicable for hexavalent chromium analysis using the specified EPA method 218.6 ammonium sulfate buffer preservation guideline. This ruling became effective on April 11, 2007. Samples analyzed after April 11, 2007, which were properly preserved, and citing EPA 218.6 in the results report, were not flagged as analyzed outside the holding time if the analysis was conducted with 28 days of collection.

Initial and Continuing Calibrations

All criteria were met for the calibration curves and the initial and continuing calibration verification (ICV/CCV) standards (where applicable) except as noted:

- **Report number 194620**: There was no mid range QC run for nitrate due to instrument mis-loading. Upon communication with the laboratory, it was determined that the mid-range continuing calibration verification (CCV) standard for nitrate was inadvertently not analyzed. The affected samples were re-analyzed beyond holding time, with similar results. The laboratory chose to report the original results. During validation the detected and nondetect nitrate results for the associated samples (Influent and Effluent) were qualified as estimated (J and UJ, respectively) due to method noncompliance.

ICS Results

All criteria were met for the analyses of the ICS A and ICS AB solutions.

Laboratory Blanks/Equipment Blanks/Field Blanks

Field blank FB-1(collected April 30, 2007), equipment blank EB-1 (collected May 1, 200), field blank FB050307 (collected May 3, 2007) and equipment blank EB040307 (collected April 03, 2007)were reviewed in association with the samples in this data set. It should be noted that FB-1 (reported in MWH Report 203068) is the source water associated with EB-1 and field blank FB050307 (reported in MWH Report 203590) is the source water associated with EB040307.

In instances where laboratory blanks, i.e., method blanks (MBs) and the initial and continuing calibration blanks (ICBs and CCBs), equipment blanks, and field blanks are associated with a given sample, laboratory blanks and field blanks were evaluated in the following order:

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- Laboratory blank actions were applied to equipment blank and field blank samples as well as associated field samples.
- Field blank actions were applied to the associated equipment blanks.
- Equipment blank actions were applied to the associated field samples.

Target analytes were not detected in the laboratory blanks associated with the samples in this data set. Therefore, no data validation actions were required on this basis.

Total dissolved solids and/or nitrate were detected in the field blanks associated with the equipment blanks in this data set. The presence of blank contamination indicates that false positive results may exist for these analytes in the associated equipment blanks. The following table summarizes the analytes, the concentration of blank contamination detected, and the associated equipment blank.

Field Blank	Analyte	Conc. Detected (mg/L)
FB-1	Total dissolved solids	62
Associated equipment blank: EB-1		

Field Blank	Analyte	Conc. Detected (mg/L)
FB050307	Nitrate	0.10
	Total dissolved solids	104
Associated equipment blank: EB043007		

It should be noted that nitrate was not detected in the associated equipment blank sample; therefore, this was considered an anomaly and no data validation actions were taken on this basis.

Sample results were qualified as follows:

For blank results >the reporting limit (RL):

- Positive sample results $\geq$ method detection limit (MDL) but $\leq$ RL were qualified as nondetect (U) at the RL.
- Positive sample results > RL but < 10x the blank result were qualified as estimated high (J+).
- Positive sample results that were $\geq$ 10x the blank result were accepted unqualified.

For blank results $\geq$ MDL but $\leq$ RL:

- Nondetects were accepted unqualified.
- Positive sample results $\geq$ MDL but $\leq$ RL were qualified as nondetect (U) at the RL.
- Positive sample results > RL and < the Action Level (AL) (determined by professional judgment) of 5x the blank contamination level were qualified as undetected (U) at the reported concentration.

The following analyte was detected in the equipment blank sample after field blank actions were applied. The following table summarizes the AL and the associated samples.

Equipment Blank	Analyte	Conc. Detected (mg/L)
EB043007	Total dissolved solids	10
Associated samples: HMW9, PC93, PC92, PC77, PC74, PC96, PC82, PC79, PC86, PC4		

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The total dissolved solids results for the associated samples were significantly greater than the reporting limits and the concentration in equipment blank EB043007. It was considered that the low level of blank contamination present would have no impact on the total dissolved results; therefore no validation action was taken on this basis.

LCS/LCSD Results

The percent recoveries (%Rs) and relative percent differences (RPDs) of the LCSs/LCSDs for chlorate, perchlorate, total dissolved solids, nitrate, total chromium, and hexavalent chromium met the laboratory acceptance criteria.

MS/MSD Results

The %Rs and RPDs of the MS/MSDs performed on all client specific samples met the laboratory acceptance criteria, with the following exception:

- **Report number 199684:** The MS and MSD %Rs (79.5 and 71.5%, respectively) for hexavalent chromium analysis of sample Effluent were outside the acceptance limit of 90-110%. As a result of the MS/MSD recovery nonconformance, samples in this data set were qualified as follows: the detected hexavalent chromium result for sample Influent was qualified as estimated, biased low (J-); the nondetect result for sample Effluent was qualified as estimated (UJ).

In most cases the batch MS/MSD analyses were performed on samples from other clients, and although this practice is acceptable, the results could not be directly applied to the samples reviewed in these data packages due to possible differences in the sample matrix and type. No validation action was taken on this basis.

Laboratory Duplicate Results

The RPDs of the laboratory duplicates for the total dissolved solids analyses performed on client specific samples met the laboratory acceptance criteria.

In most cases batch laboratory duplicate analyses were performed on samples from other clients, and although this practice is acceptable, the results could not be directly applied to the samples reviewed in these data packages due to possible differences in the sample matrix and type. No validation action was taken on this basis.

No laboratory duplicates were analyzed for chlorate, perchlorate, nitrate, total chromium, and hexavalent chromium. Precision in the laboratory was demonstrated by the MS/MSD and/or the LCS/LCSD analyses (see discussions above).

Field Duplicate Results

The following field duplicate pair was submitted with the samples in this data set. The following table summarizes the sample IDs, the detected results and the associated RPDs.

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Analyte	Sample IDs/Collection Date	Sample	Duplicate	RPD
Perchlorate (μg/L)	M-57A/MD-4 (5/01/2007)	20400	21800	7
Total Chromium (mg/L)		0.081	0.081	0
Total Dissolved Solids (mg/L)		3180	3230	2

The RPDs met the QC acceptance criteria of 30% maximum RPD for an aqueous matrix.

ICP Serial Dilution Results

In most cases batch serial dilution analyses were performed on samples from other clients, and although this practice is acceptable, the results could not be directly applied to the samples reviewed in these data packages due to possible differences in the sample matrix and type. No validation action was taken on this basis.

Sample Results/Detection Limits

Calculations were spot-checked. There were no discrepancies noted.

Analytical dilutions were necessary for most samples due to matrix interferences or to bring analyte concentrations within the instrument calibration range.

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Attachment A

MWH Report #	Sample Collection Date	Analyses
197237	2/26/2007	Hexavalent Chromium
192296	1/2/2007	Perchlorate, Total Chromium, Chlorate, Nitrate
192802	1/8/2007	Perchlorate, Total Chromium, Chlorate, Nitrate
194620	1/29/2007	Perchlorate, Total Chromium, Chlorate, Nitrate
199684	3/26/2007	Hexavalent Chromium
203157R	4/30/2007	Perchlorate, Total Chromium, Chlorate, Nitrate, Total Dissolved Solids
203332	5/1/2007	Perchlorate, Hexavalent Chromium, Total Chromium, Chlorate, Nitrate, Total Dissolved Solids
203746	5/7/2007	Perchlorate, Total Chromium, Total Dissolved Solids
203814	5/7/2007	Perchlorate, Hexavalent Chromium, Total Chromium, Chlorate, Nitrate
207230	6/11/2007	Perchlorate, Hexavalent Chromium, Total Chromium, Chlorate, Nitrate